

In the Claims

This listing of claims will replace all prior versions, and listings, of claims.

Listing of Claims

1. – 17. Canceled.

18. (Withdrawn) An electret composite, comprising:

a substrate; and

an electret coated on the substrate, the electret having a first polymer copolymerizing from monomers having VdF as a first monomer, and HFP, CTFE, TFE, or combinations thereof as a second monomer.

19. (Withdrawn) The composite as claimed in claim 18, wherein the substrate comprises polyethylene, polypropylene, poly(butylene terephthalate), polytetrafluoroethylene, poly(tetrafluoroethylene/ethylene), or polystyrene.

20. (Withdrawn) The composite as claimed in claim 19, wherein the substrate is film, plate, or, nonwoven or woven fiber.

21. (Withdrawn) The composite as claimed in claim 18, wherein the content of VdF in the first polymer is between 10 mole% and 80 mole%.

22. (Withdrawn) The composite as claimed in claim 18, wherein the content of HFP in the first polymer is approximately 30 mole% or less.

23. (Withdrawn) The composite as claimed in claim 18, wherein the content of CTFE in the first polymer is approximately 30 mole% or less.

24. (Withdrawn) The composite as claimed in claim 18, wherein the content of TFE in the first polymer is approximately 40 mole% or less.

25. (Withdrawn) The composite as claimed in claim 18, wherein the monomers further comprise a third monomer comprising cyclohexyl vinyl ether, 4-hydroxybutyl vinyl ether, ethyl vinyl ether, methyl methacrylate, butyl acrylate, 2-hydroxy ethyl methacrylamide, glyceryl methacrylamide, acrolein, butyl vinyl ether, propionic vinyl ether, α,α -dimethylpropionic vinyl ether, or combinations thereof.

26. (Withdrawn) The composite as claimed in claim 25, wherein the content of the third monomer in the first polymer is approximately 30 mole% or less.

27. (Withdrawn) The composite as claimed in claim 18, wherein the content of fluorine element in the first polymer is between 60 and 76 wt%.

28. (Withdrawn) The composite as claimed in claim 18, wherein the electret further comprises a second polymer mixed with the first polymer, the second polymer comprising

polymethacrylate, polyvinyl acetate, polycarbonate, polyurethane, polyester, polyimide, poly(butylene terephthalate), or polystyrene.

29. (Withdrawn) The composite as claimed in claim 28, wherein the content of second polymer in the electret is approximately 60 wt% or less.

30. (Withdrawn) The composite as claimed in claim 18, wherein the electret is porous material.

31. (Withdrawn) The composite as claimed in claim 18, wherein the electret is porosified by solvent, supercritical fluid, or thermal decomposition.

32. (Withdrawn) The composite as claimed in claim 18, wherein the substrate is coated with the electret by a solvent or direct heating method.

33. (Withdrawn) The composite as claimed in claim 32, wherein solvent used in the solvent process is acetone, methyl ethyl ketone, methyl isobutyl ketone, 1-methyl-2-pyrrolidone, dimethyl sulfoxide, dimethylformamide, or combinations thereof.

34. (Withdrawn) The composite as claimed in claim 33, wherein the solvent process further comprises impregnation, spraying, or spin-coating.

35. (Withdrawn) The composite as claimed in claim 18, wherein initial surface potential of the electret is between 1350 and 2950V when polarized by corona discharge under potential difference of approximately 18KV.

36. (Withdrawn) The composite as claimed in claim 35, wherein a surface potential of the electret is 12 to 55 percents of the initial surface potential when standing at room temperature for approximately 10 days from polarization.

37. (Withdrawn) The composite as claimed in claim 31, wherein initial surface potential of the electret is between 2820 and 2950V when polarized by corona discharge under potential difference of approximately 18KV.

38. (Withdrawn) The composite as claimed in claim 31, wherein a surface potential of the electret is 50 to 55% of the initial surface potential at room temperature for approximately 10 days from polarization.

39. (Currently Amended) An electret composite, comprising:

a porous substrate; and

an electret coated on the substrate along the porous profile thereof, the electret having a first polymer copolymerizing from monomers having polyvinylidene fluoride (VdF) as a first monomer, and hexafluoropropylene (HFP), chlorotrifluoro ethylene (CTFE), tetrafluoro ethylene (TFE), or combinations thereof as a second monomer.

40. (Original) The composite as claimed in claim 39, wherein the substrate comprises a nonwoven or woven fabric of polyethylene terephthalate, polyethylene, polypropylene, polytetrafluoroethylene, polystyrene, or polyvinyl chloride.

41. (Original) The composite as claimed in claim 39, wherein the content of VdF in the first polymer is between 10 mole% and 80 mole%.

42. (Original) The composite as claimed in claim 39, wherein the content of HFP in the first polymer is approximately 30 mole% or less.

43. (Original) The composite as claimed in claim 39, wherein the content of CTFE in the first polymer is approximately 30 mole% or less.

44. (Original) The composite as claimed in claim 39, wherein the content of TFE in the first polymer is approximately 40 mole% or less.

45. (Original) The composite as claimed in claim 39, wherein the monomers further comprise a third monomer comprising cyclohexyl vinyl ether, 4-hydroxybutyl vinyl ether, ethyl vinyl ether, methyl methacrylate, butyl acrylate, 4-hydroxyl ethyl methacrylamide, glyceryl methacrylamide, acrolein, butyl vinyl ether, propionic vinyl ether, α,α -dimethylpropionic vinyl ether, or combinations thereof.

46. (Original) The composite as claimed in claim 45, wherein the content of the third monomer in the first polymer is approximately 30 mole% or less.

47. (Original) The composite as claimed in claim 39, wherein the content of fluorine element in the first polymer is between 60 and 76 wt%.

48. (Original) The composite as claimed in claim 39, wherein the electret further comprises a second polymer mixed with the first polymer, the second polymer comprising polymethacrylate, polyvinyl acetate, polycarbonate, polyurethane, polyester, polyimide, poly(butylene terephthalate), or polystyrene.

49. (Currently Amended) The composite as claimed in claim ~~39~~48, wherein the content of second polymer in the electret is approximately 60 wt% or less.

50. (Original) The composite as claimed in claim 39, wherein the substrate is coated by dissolving the electret in acetone, methyl ethyl ketone, methyl isobutyl ketone, 1-methyl-2-pyrrolidone, dimethyl sulfoxide, dimethylformamide, or combinations thereof to form a solution, immersing the substrate in the solution, taking the substrate from the solution, and evaporating the solution therefrom.

51. (Original) The composite as claimed in claim 39, wherein a initial surface potential of the electret is between 2820 and 2950V when polarized by corona discharge under potential difference approximately 18KV.

52. (Original) The composite as claimed in claim 51, wherein a surface potential of the electret is 50 to 55% of the initial surface potential at room temperature for approximately 10 days from polarization.

53. (New) The composite as claimed in claim 39, wherein the electret is coated on the inner walls of the pores of the porous substrate.